

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application. Please amend claims 80-88. Please cancel claim 89.

Listing of Claims:

1. - 79. (Canceled)

80. (Currently Amended) ~~A ligand-activated uni-molecular detector A polypeptide comprising consisting essentially of:~~

~~a circularly permuted marker protein comprising~~ a first interactor domain covalently bonded to ~~the a~~ circularly permuted marker protein through an N-terminal breakpoint of the circularly permuted marker protein and a second interactor domain covalently bonded to the circularly permuted marker protein through a C-terminal breakpoint of the circularly permuted marker protein, wherein said circularly permuted marker protein is functionally reconstituted only upon binding of said first interactor domain and said second interactor domain to a single ligand.

81. (Currently Amended) The ~~ligand-activated uni-molecular detector polypeptide~~ of claim 80, wherein said circularly permuted marker protein is a circularly permuted enzyme.

82. (Currently Amended) The ~~ligand-activated uni-molecular detector polypeptide~~ of claim 81, wherein said circularly permuted enzyme is a β -lactamase protein.

83. (Currently Amended) The ~~ligand-activated uni-molecular detector polypeptide~~ of claim 82, wherein said circularly permuted enzyme is a TEM-1 β -lactamase protein.

84. (Currently Amended) The ~~ligand-activated uni-molecular detector polypeptide~~ of claim 80, wherein said N-terminal break point and said C-terminal break point are within a solvent exposed loop between elements of secondary structure within the enzyme.

85. (Currently Amended) The ~~ligand-activated uni-molecular detector polypeptide~~ of claim 80, wherein said ~~circularly permuted protein consists essentially of a circularly permuted marker protein is a β-lactamase protein that has been circularly permuted, with the said β-lactamase protein consisting of amino acids 26 to 288 of the following sequence prior to circular permutation following numbering convention:~~

His	Pro	Glu	Thr	Leu	Val	Lys	Val	Lys	Asp	Ala	Glu	Asp	Gln	Leu	Gly
26				30					35				40		
Ala	Arg	Val	Gly	Tyr	Ile	Glu	Leu	Asp	Leu	Asn	Ser	Gly	Lys	Ile	Leu
				45				50				55			
Glu	Ser	Phe	Arg	Pro	Glu	Glu	Arg	Phe	Pro	Met	Met	Ser	Thr	Phe	Lys
				60			65			70					
Val	Leu	Leu	Cys	Gly	Ala	Val	Leu	Ser	Arg	Ile	Asp	Ala	Gly	Gln	Glu
			75				80			85					
Gln	Leu	Gly	Arg	Arg	Ile	His	Tyr	Ser	Gln	Asn	Asp	Leu	Val	Glu	Tyr
			90			95			100			105			
Ser	Pro	Val	Thr	Glu	Lys	His	Leu	Thr	Asp	Gly	Met	Thr	Val	Arg	Glu
				110				115			120				
Leu	Cys	Ser	Ala	Ala	Ile	Thr	Met	Ser	Asp	Asn	Thr	Ala	Ala	Asn	Leu
					125			130			135				
Leu	Leu	Thr	Thr	Ile	Gly	Gly	Pro	Lys	Glu	Leu	Thr	Ala	Phe	Leu	His
				140			145			150					
Asn	Met	Gly	Asp	His	Val	Thr	Arg	Leu	Asp	Arg	Trp	Glu	Pro	Glu	Leu
				155			160			165					
Asn	Glu	Ala	Ile	Pro	Asn	Asp	Glu	Arg	Asp	Thr	Thr	Met	Pro	Val	Ala
				170			175			180			185		

Met Ala Thr Thr Leu Arg Lys Leu Leu Thr Gly Glu Leu Leu Thr Leu
190 195 200
Ala Ser Arg Gln Gln Leu Ile Asp Trp Met Glu Ala Asp Lys Val Ala
205 210 215
Gly Pro Leu Leu Arg Ser Ala Leu Pro Ala Gly Trp Phe Ile Ala Asp
220 225 230
Lys Ser Gly Ala Gly Glu Arg Gly Ser Arg Gly Ile Ile Ala Ala Leu
235 240 245
Gly Pro Asp Gly Lys Pro Ser Arg Ile Val Val Ile Tyr Thr Thr Gly
250 255 260 265
Ser Gln Ala Thr Met Asp Glu Arg Asn Arg Gln Ile Ala Glu Ile Gly
270 275 280
Ala Ser Leu Ile Lys His Trp
285

(SEQ ID NO: 2);

wherein said N-terminal breakpoint and said C-terminal breakpoint are within 10 amino acids of an amide bond junction between two amino acids selected from the group consisting of asparagine 52 and serine 53, leucine 91 and glycine 92, glutamine 99 and asparagine 100, proline 174 and asparagine 175, glutamic acid 197 and leucine 198, lysine 215 and valine 216, alanine 227 and glycine 228, and glycine 253 and lysine 254.

86. (Currently Amended) The ~~ligand-activated uni-molecular detector~~ polypeptide of claim 85, wherein said two amino acids are selected from the group consisting of proline 174 and asparagine 175, glutamic acid 197 and leucine 198, lysine 215 and valine 216, alanine 227 and glycine 228, and glycine 253 and lysine 254.

87. (Currently Amended) The ~~ligand-activated uni-molecular detector~~ polypeptide of claim 85, wherein said two amino acids are glutamic acid 197 and leucine 198.

88. (Currently Amended) The ~~ligand-activated uni-molecular detector~~
polypeptide of claim 80, wherein said ligand is a protein ligand.

89. (Canceled)

Amendments to the Specification:

Please replace the paragraph beginning on page 1, line 11, with the following:

--This invention was made with government support under 1R43AI45281-01A1 and 1R43GM60109-01 awarded by the National Institute of Health. The government has certain rights in the invention.--